

REMARKS

This paper and the accompanying Request for Continued Examination (RCE) are being submitted in response to the Final Office Action dated July 27, 2004, having a shortened statutory period set to expire on November 17, 2004 (the mailing date of the advisory action), extended to December 17, 2004.

Claims 1-51 are pending in the present application.

Claims 1-5, 16-20, and 31-41 are rejected.

Claims 6-15, 21-30, 42-51 are objected to.

Rejection of Claims under 35 U.S.C. § 102

Claims 1-5, 16-20 and 31-41 stand rejected under 35 U.S.C. § 102(b), as being anticipated by Wilford, et al., U.S. Patent No. 5,509,006. Applicants respectfully traverse this rejection for the reasons (reprinted below) cited in the response, filed September 27, 2004, to the Final Office Action. Additionally, Applicants note that in the Advisory Action, the Examiner stated: “Applicants are challenged to further define the disputed term [balanced hash table] in a response to this Office Action. Should the Applicants comply to the challenge, the application would be placed in condition for allowance.” Advisory Action, p. 2.

Applicants assert that the terms in the phrase “Balanced Hash Table of Access Control List Binary Comparison Trees” are clearly defined as they appear in claim 1. This phrase describes a “hash table” that is “balanced.” As noted on p. 8 of the specification, “balanced” means that the trees are “distributed roughly evenly both in depth and across the entries of the entire hash table.” This “balanced hash table” has as entries “binary comparison trees” that encode an “access control list.” As noted below, the cited art does not teach or suggest such a hash table (or any hash table at all, for that matter). Instead, the cited art teaches a tree memory, and no explanation has been provided as to why such a tree memory would suggest the balanced hash table of claim 1. Accordingly, Applicants respectfully assert that the cited art fails to anticipate, teach, or suggest claim 1.

As noted in the response (filed September 27, 2004) to the Final Office Action, Claim 1 recites: “receiving at least one packet; and disposing of the received at least one packet in response to a walk of a Balanced Hash Table of Access Control List Binary Comparison Trees, the Table encoding an Access Control List.” The cited art fails to anticipate, teach, or suggest a balanced hash table of access control list binary comparison trees, as recited in claim 1.

Wilford teaches a system in which, “[t]he outputs of the comparator 307 may be coupled to a decision tree memory 308, herein a ‘tree memory’. In a preferred embodiment, the tree memory 308 may comprise a set of three addressable memories 309, each selected by one output of the comparator 307. Thus, one addressable memory 309 may be enabled by the ‘<’ output, one by the ‘=’ output, and one by the ‘>’ output. The tree memory may also receive a second input comprising an address for indicating a memory location in each addressable memory 309 for the tree memory 308. Thus, the outputs of the comparator 307 and the second input of the tree memory 308 may collectively indicate an entry 310 in the tree memory 308.” Wilford, col. 6, lines 21-33. “The tree memory may operate in conjunction with other circuits to comprise a finite state machine that matches packets 106 using a branching decision tree. Each address of the tree memory 308 may represent a state of the finite state machine, at which a data word of the header 107 may be compared with a known data value, one or more actions taken in response to the comparison, and a next state selected in response to the comparison.” Wilford, col. 7, lines 43-49. “A set of protocol tests are assembled into the tree memory, and a set of routing tables are dynamically generated into the tree memory.” Wilford, Abstract.

In the rejection of claim 1, the tree memory taught in Wilford is cited as teaching the “balanced hash table of access control list binary comparison trees” of claim 1. Applicant notes that the cited tree memory is clearly not a balanced hash table, nor is the use of a balanced hash table suggested within the cited portions of Wilford. Neither the term “balanced” nor the term “hash table” appear anywhere within Wilford. Accordingly, the cited art clearly fails to anticipate, teach, or suggest each and every element of claim 1. For at least the foregoing reasons, withdrawal of the rejection of claims 1-5, 16-20, and 31-41 is requested.

In the response to arguments section of the Final Office Action, the Examiner states that “there is no specific definition” for the term “balanced hash table” and that this term has been “subjected to Examiner’s broadest reasonable interpretation against the prior art of Wilford.” Final Office Action, p. 5. While it is proper to give claims their broadest reasonable interpretation during examination, this interpretation must be consistent with the ordinary and customary meaning given to the claim terms by one of ordinary skill in the art. See MPEP § 2111.01. For example, the interpretation of “hash table” must be consistent with the ordinary and customary meaning that one of ordinary skill in the art would give the phrase “hash table.” The Final Office Action has not cited any portion of Wilford as teaching or suggesting that tree memory 208 is a hash table, nor does the phrase “hash table” appear within Wilford.

Similarly, the phrase “balanced hash table” must be interpreted consistently with the ordinary and customary meaning that one of ordinary skill in the art would give that phrase (i.e., a hash table that is balanced). Page 8 of Applicants’ specification describes a hash table in which “the trees are distributed roughly evenly both in depth and across the entries of the entire hash table.” No portion of Wilford has been cited as teaching or suggesting either a hash table or a balanced hash table. For at least the foregoing reasons, claims 1-5 are patentable over the cited art. Claims 16-20 and 31-34 are patentable over the cited art for similar reasons.

Further with respect to claim 2, the cited art fails to anticipate, teach, or suggest “constructing a hash table index value from one or more bit positions, within the received at least one packet, pointed at by one or more pointers of a Hash-Table-Balancing Bit Selection Vector,” as recited in claim 2. The Final Office Action cites the routing table (element 802) of FIG. 8 and col. 16, line 53 – col. 17, line 50, which describe a tree program generator, of Wilford as teaching the features of claim 2. The cited portions of Wilford describe how a tree program generator can convert information from routing table 802 into functional subsections, or subtrees, within the tree memory, and how each subtree may parse and recognize a portion of each packet. Col. 16, lines 57-61. “For example, a first subtree 803 may parse and recognize information relating to protocol classification, a second subtree 803 may parse and recognize information relating to source-route bridging, and a third subtree 803 may parse and recognize information relating to a particular set of destination addresses.” Col. 17, lines 42-28. Using subtrees within the tree memory to parse and

recognize particular portions of each packet is not equivalent to constructing a hash table index value, as described in claim 2. Thus, the cited portions of Wilford neither teach nor suggest constructing a hash table index from one or more bit positions pointed at by a Hash-Table-Balancing Bit Selection Vector. Accordingly, claim 2 is patentable over the cited art for at least the foregoing reasons.

Additionally, Applicants note that there is no reason to interpret claims 1-5 according to step-plus-function format. As noted in MPEP § 2181, “a claim element that does not include the phrase ‘means for’ or ‘step for’ will not be considered to invoke 35 USC §112, sixth paragraph.” MPEP, 2100-221. Claims 1-5 do not include either phrase, and thus should not be interpreted according to 35 USC §112, sixth paragraph.

Allowable Subject Matter

Applicants assert that claims 6-15, 21-30, and 42-51 depend from patentable base claims. Claims 6-15, 21-30, and 42-51 were objected to as being dependent upon a rejected base claim, but indicated as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants thank the Examiner for the thoughtful consideration of these claims. Applicants will rewrite these claims in independent form at a later date, if necessary.

CONCLUSION

The application is believed to be in condition for allowance, and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the Examiner is invited to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on November 30, 2004.

Brenna A. Brock
Brenna A. Brock
Attorney for Applicant(s)

11-30-2004
11-30-2004
Date of Signature

Respectfully submitted,

Brenna A. Brock

Brenna A. Brock
Attorney for Applicant(s)
Reg. No. 48,509
512-439-5087 (Telephone)
512-439-5099 (Facsimile)